

Alessandro Melis

Borboletta

Buenos Aires 2019



1. Introduction



Fig. 1: Borboletta at Bienal Internacional de Arquitectura de Buenos Aires.

PROJECT DETAILS

Type:	Professional / Installation
Program:	Research Installation
Location:	Buenos Aires Argentina
Institution:	Bienal Internacional de Arquitectura de Buenos Aires
Architect:	Alessandro Melis/ Heliopolis 21, Eric Goldemberg/ Monad Studio
Collaborators:	Juhmur Gokchepinar, Francesco Lipari, Veronica Zalberg,
Engineering:	Jorge Cereghetti
Status:	Built
Chronology:	Exhibition (2019)
Cost:	15,000 USD

1. Introduction/Process

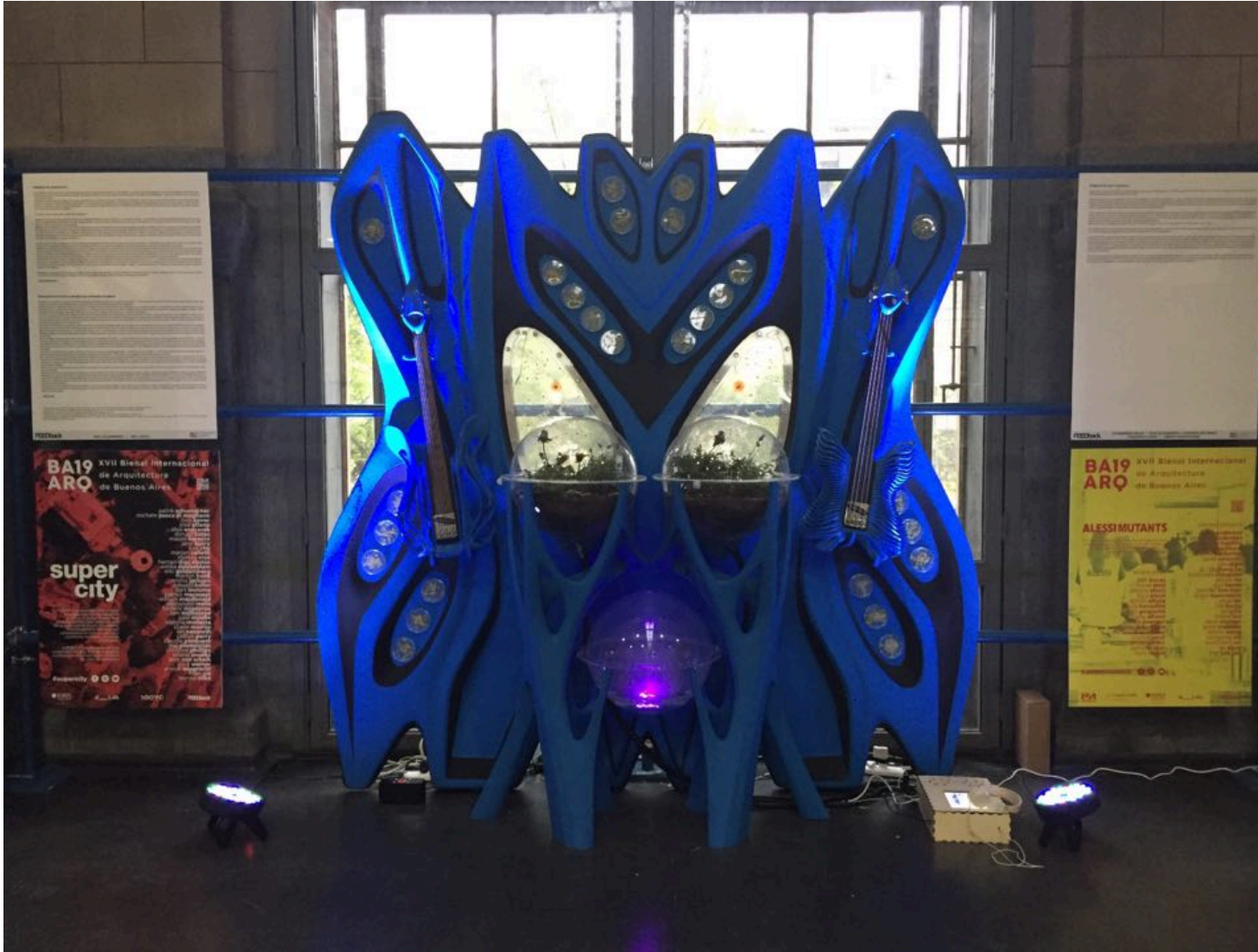


Fig. 2: Borboletta at the centre of the group exhibition FEEDback at Bienal Internacional de Arquitectura de Buenos Aires.

CONTEXT

Borboletta is a sonic installation with living organisms for the group exhibition FEEDback at Bienal Internacional de Arquitectura de Buenos Aires. The work team also includes Juhmur Gokchepinar, who coordinates the integration between architecture and microbiology, Eric Goldemberg, for the sonic interaction, Francesco Lipari, for biodiversity and Jorge Cereghetti for 3D printing. In Borboletta the interest in the field of climate sensitive design becomes an instrument to discuss the urban fabric and its relationship with the troposphere in order to transform the cities in virtuous open systems reacting to the climate change. Moreover a radical spatial re-configuration of the built environment based on the Borboletta prototype can offer opportunities for the positive development/ transformation of the current energy intensive metabolism into biomass power generation as well as for the conceptualization of a revolutionary biodiversity design. Borboletta is not an object, a unique and recognizable item. It is instead intended as a part of hybrid landscapes generated by specific variations of the urban continuum, also involving autopoietic processes aimed to the adaptation to extreme environmental conditions.

2. Research Question



RESEARCH QUESTION

1. How can a transdisciplinary research be represented through an art installation?
2. How can art contribute to the public awareness on the global environmental crisis ?
3. How can art contribute to an exploration of new paradigm regarding the sensorial augmentation and the overcoming of conventional dichotomies such as artificial-organic

Fig. 3-4: Borboletta and detail of the first published window with living organism as a sun screen system

3. Methods & Process

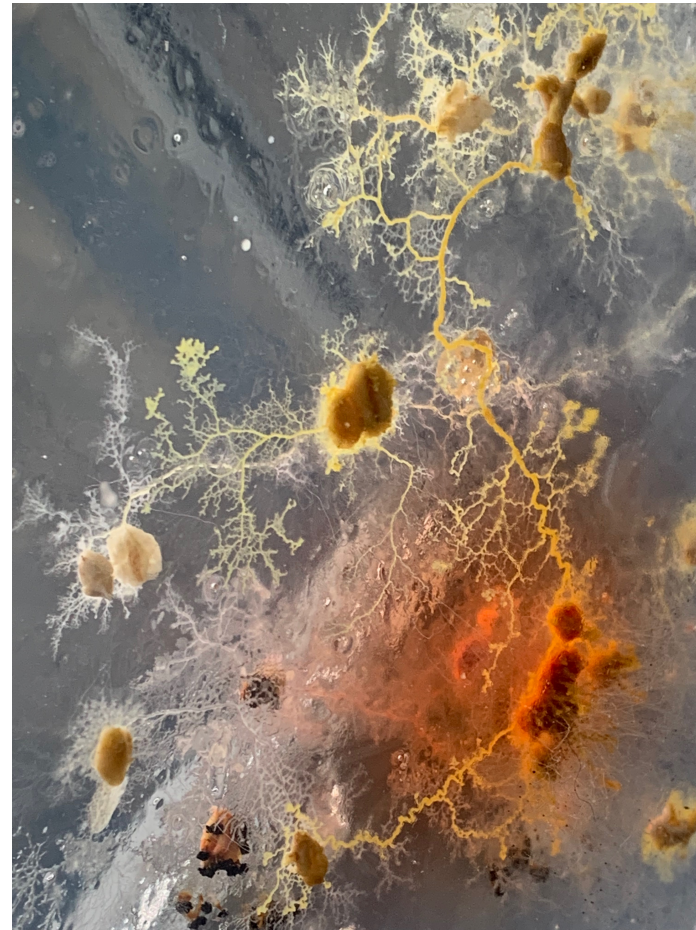
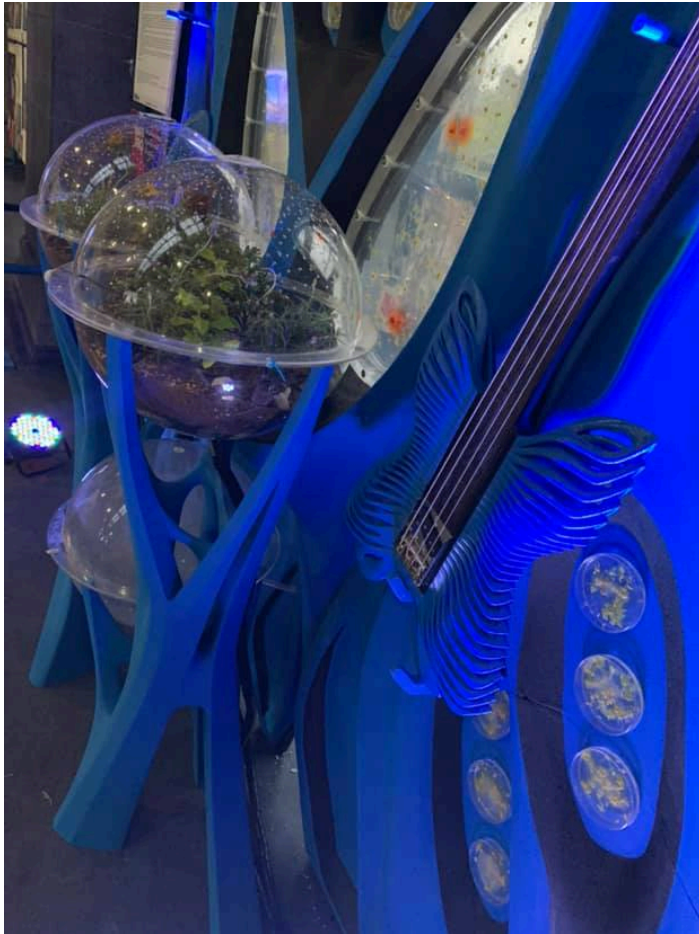


Fig.4-5: Borboletta details.

METHODS & PROCESS

Borboletta is a research project on the integration between microbiology, biodiversity and architecture, aimed at the construction of a new urban paradigm intended as an ecosystem rather than an artifice. Borboletta consists of 4 integrated entities representing the essential ingredients of a future resilient ecosystem: a variable scaffolding structure which allows interaction with the human body, the sensoriality represented by the sonic integration (two 3Dprinted guitars) and the Arduino feedback systems, the self-sufficient habitat oriented to the proliferation of biodiversity (bee spheres), and the climate responsivity of the system, through expansion and contraction of an acellular mass of creeping gelatinous protoplasm containing nuclei (Slime Mould). This is the first step of an ongoing research aimed at the construction of repeatable module for a closed loop colonisation of the urban sphere also aimed at terraforming. Borboletta is therefore not a phenotype, but a genetically modified chrysalis meant as an evolving organism, linking slime mould cell-farming to micro scale bee-topoi enabling eco systemic iterations, questioning conventional artefact-nature dichotomies.

4. Insights



Fig. 6: Detail of the biosphere with cricket farming

INSIGHTS

Borboletta, as a transdisciplinary research, is the result of few years cross disciplinary and transgenerational research challenging the conventional relationship between artefact and nature.

Here the research of Alessandro Melis (University of Portsmouth), Eric Goldemberg/MONAD Studio, Francesco Lipari/Ofi and Jumhur Gokchepinar/ University of Portsmouth for the first time converge. The project also includes the collaboration with Jorge Cereghetti who led a team of students of the UADE in the construction of the CNC milled body of Borboletta.

The aforementioned research team believes that nature-facts, intended as a new axiomatic relationship between artefact and nature, can contribute to the construction of new ecologic paradigms for the positive development of the Troposphere.

The collaboration was pivotal as different researches made the project more integrated and capable of enriching the perspectives of the participants and public visitors of the exhibitions (also considering Borboletta is an interactive and immersive installation).

5. Dissemination



Fig. 7: Slime Mold & symbiosis. Detail of a living organism as a sun screen system.

DISSEMINATION

The success and interest of the media for this innovative project is proven by the invitation, followed by an award, to exhibit the first prototype of the Borboletta at the Buenos Aires Biennale (October 2019), among the most important architecture events in South America, then at the Pisa Biennale (November 2019), in its application version, and finally on display in Miami at Florida International University (March 2020)

The use of parametric tools allowed the transformation and growth of the project during the process of adaptation to different environmental contexts. Borboletta is now a case study in a interdisciplinary publication edited by Nima Rezavi (Springer, January 2021). The chapter which refers to this case study considers borboletta as an example of architectural exaptation, The chapter is co-authored by Telmo Pievani, the most influential Italian evolutionary biology and former assistant of Stephen Jay Gould who has revolutioned biology taxonomy in the Eighties.

Other publications and presentations:

Borboletta, (2020). Antagonismos magazine, 04.

Florida International University_News

<http://cartanews.fiu.edu/faculty-spotlight-associate-professor-shines-at-the-bienal-internacional-de-arquitectura-in-argentina/>

Presentation of the upgraded version of Borboletta at the Pisa Architecture Biennale

<https://vimeo.com/392496982>